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DataStar Web

Documents

DataStar-Documents

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Capture and restoration of the execution context of a thread in the Java environment.	
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Memory management strategies for C++	
Search strategy	6

Capture and restoration of the execution context of a thread in the Java environment.

Accession number & update

6489162, C2000-03-6150N-042; 20000201.

Author(s)

Bouchenak-S; Hagimont-D; Rousset-de-Pina-X.

Author affiliation

Inst Nat de Recherche en Inf et Autom, Montbonnot St Martin, France.

Source

Proceedings of CFSE: First French Conference on Operating Systems, Rennes, France, 8–11 June 1999. In: p.69–84, 1999.

Publication year

1999.

Language

FR.

Publication type

CPP Conference Paper.

Treatment codes

P Practical.

Abstract

Today, distributed computing over the Internet is closely linked with Java. The Java virtual machine is ported to most of the current operating systems and provides many services which help in the development of distributed applications (e.g. RMI). In Java, mobility is a very important aspect. Java provides a serialisation mechanism which allows the *capture* and restoration of object states and therefore to migrate objects between machines. It also allows classes to be dynamically loaded and therefore to be moved between nodes. However, Java does not provide a mechanism for capturing and restoring a *thread* state. The stack of a Java *thread* is not accessible. Such a mechanism would notably allow a *thread* to be checkpointed or migrated between different nodes. We report on our experience which consisted in extending the Java virtual machine in order to allow the *capture* and restoration of a *thread* state. We overview the implementation of this extension and provide preliminary results of its evaluation. (19 refs).

Descriptors

distributed-programming; Java; multi-threading; object-oriented-programming; program-processors; virtual-machines.

Keywords

execution context; thread; Java environment; distributed computing; Internet; Java virtual machine; distributed applications; RMI; serialisation mechanism; object states.

Classification codes

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C6150N (Distributed systems software).
C6110J (Object-oriented programming).
C6140D (High level languages).
C6150C (Compilers, interpreters and other processors).
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Copyright statement

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Performance measurements for multithreaded programs.

USPTO Full Text Retrieval Options

INSPEC - 1969 to date (INZZ)

Accession number & update

5990489, C9809-5470-033; 980804.

Author(s)

Minwen-Ji; Felten-E-W; Kai-Li.

Author affiliation

Dept of Comput Sci, Princeton Univ, NJ, USA.

Source

SIGMETRICS '98/PERFORMANCE'98. Joint International Conference on Measurement and Modeling of Computer Systems, Madison, WI, USA, 22–26 June 1998.

Sponsors: ACM.

In: Performance-Evaluation-Review (USA), vol.26, no.1, p.161-70, June 1998.

CODEN

PEREDN.

ISSN

ISSN: 0163-5999.

Availability

SICI: 0163-5999(199806)26:1L.161:PMMP; 1-Q.

Publication year

1998.

Language

EN.

Publication type

CPP Conference Paper, J Journal Paper.

Treatment codes

A Application; P Practical.

Abstract

Multithreaded programming is an effective way to exploit concurrency, but it is difficult to debug and tune a highly threaded program. This paper describes a performance tool called Tmon for monitoring, analyzing and tuning the performance of multithreaded programs. The performance tool has two novel features: it uses "thread waiting time" as a measure and constructs thread waiting graphs to show thread dependencies and thus performance bottlenecks, and it identifies "semi-busy-waiting" points where CPU cycles are wasted in condition checking and context switching. We have implemented the Tmon tool and, as a case study, we have used it to measure and tune a heavily threaded file system. We used four workloads to tune different aspects of the file system. We were able to improve the file system bandwidth and throughput significantly. In one case, we were able to improve the bandwidth by two orders of magnitude. (21 refs).

Descriptors

parallel-programming; performance-evaluation; synchronisation.

Keywords

performance measurements; multithreaded programs; concurrency; highly threaded program; performance tool; Tmon; *thread* waiting *time*; performance bottlenecks; semi busy waiting; CPU cycles; condition checking; context switching.

Classification codes

C5470 (Performance evaluation and testing).

C6110P (Parallel programming).

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Memory management strategies for C++.

USPTO Full Text Retrieval Options

INSPEC - 1969 to date (INZZ)

4492139, C9311-6150J-005; 930922.

Author(s)

Lethaby-N; Black-K.

Source

Embedded-Systems-Programming (USA), vol.6, no.7, p.28-32, 34, July 1993.

CODEN

EYPRE4.

ISSN

ISSN: 1040-3272.

Publication year

1993.

Language

EN.

Publication type

J Journal Paper.

Treatment codes

P Practical.

Abstract

The article examines some of the challenges posed to embedded systems designers by C++ memory usage and presents some solutions that can dramatically increase system performance and prevent loss of useful memory to the system. The authors begin by looking at how memory can be most efficiently allocated from the heap to C++ objects and how to take advantage of operator overloading to increase the speed of allocation for particular classes. They then outline the potential for memory leakage when a multithreaded (or multitasking) real-time operating system is used in conjunction with C++, and how this problem can be avoided by allowing the operating system to track which objects are associated with a particular thread of execution. Several implementation examples, all based on the pSOS+ real-time operating system, are used to illustrate techniques for improving memory management in both single— and multi—threaded embedded systems. (0 refs).

Descriptors

C-language; object-oriented-languages; operating-systems-computers; *real-time-systems;* storage-management.

Keywords

memory management; C; embedded systems designers; memory usage; system performance; heap; C objects; operator overloading; memory leakage; real *time* operating system; pSOS; multi threaded embedded systems.

Classification codes

C6150J (Operating systems).
C6110J (Object-oriented programming).
C6140D (High level languages).
C6120 (File organisation).

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Search strategy

No.	Database	Search term	Info added since	Results
2	INZZ	(measure OR capture OR track) NEAR thread NEAR (time OR execution OR information)	unrestricted	3

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